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EXAMINER

EMPIE, NATHAN H

ART UNIT

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09/29/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/519,945	Applicant(s) HARRIS ET AL.	
	Examiner NATHAN H. EMPIE	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 and 24-26 is/are pending in the application.
- 4a) Of the above claim(s) 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22, 24 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/29/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Claim 26 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 7/10/08. Claims 1-22, and 24-25 are currently pending examination.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 13 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear as to whether 1% to about 10% (claim 13), and 3% (claim 14), are referring to weight %, volume %, mole %, etc. For purposes of examination these %'s were treated as weight %.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 11, 12, 15, 20, 22, and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Sugio et al (US patent 4,086,128; hereafter Sugio).

Claims 1, 11, 12, and 24: Sugio teaches a method of preparing the surface of coated structure (such as a resin coated glass fiber fabric, or a ply of resin / glass being coated with additional plies during lamination) for the application of an overcoat (see for example, abstract, col 5 lines 20 - 25), comprising;

Cleaning the surface of the coat with a cleaning solution (washed with a neutral detergent and water see, for example, col 5 lines 24 – 26), and

Applying an oxidizing agent (H_2O_2) to the surface (see, for example, col 3 lines 45 - 55, col 5 lines 20 – 32, col 9 lines 15 - 25).

Claim 15: Sugio further teaches wherein the oxidizing agent is applied via spraying (see, for example, col 9 lines 20 – 22).

Claim 20: Sugio further teaches wherein the structure is a composite material (see, for example, glass – epoxy ply composite, col 5 lines 20 – 25).

Claim 22: Sugio teaches the method of claim 1 (described above), and further teaches applying the overcoat (metal film, see, for example, col 5 lines 41 - 45).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 – 22 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over the contents of internet website to Polyfiber aircraft coatings:

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<http://web.archive.org/web/19970402192545/http://www.polyfiber.com/step/> ; (hereafter Polyfiber, site confirmed to be publicly available on 4/2/1997 via the Internet Archive Wayback Machine) in view of the Chemetall product specification sheet of Ardrex 1900B (dated Feb 2001, procured from <http://www.aerospace.chemetall.com/pdf/TDS%Ardrex%201900B.pdf> ; hereafter Chemetall), Sugio, and Ball et al (US patent 6,559,242; hereafter Ball).

Claims 1, 11, 12, and 24: Polyfiber teaches a coated aircraft structure and the method of preparing the surface of a coated aircraft structure for the application of an overcoat (see, for example, "Step 2" through "Step 4", figures, and pg 1-4) comprising, cleaning the surface or the coat (thoroughly washing/ degreasing / cleaning the under coating prior to applying an overcoating; see for example pg 2 to 3, Steps 2 to 4).

Polyfiber broadly teaches the cleaning step, but is silent as to the specific chemicals that should be used for cleaning in preparing the surface for overcoating; So Polyfiber does not explicitly teach cleaning with a cleaning solution. When a primary reference is silent as to a certain detail, one of ordinary skill would be motivated to consult a secondary reference which satisfies the deficiencies of the primary reference. Chemetall teaches an alkaline cleaner specifically designed to predictably clean aircraft surfaces (see, for example, pg 1). As both Polyfiber and Chemetall have taught cleaning of aircraft surfaces, and as Polyfiber was silent as to a specific cleaner to use, it would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated the cleaning solution taught by Chemetall into the method taught by Polyfiber as it is a predictable cleaning solution to clean aircraft surfaces.

Neither Polyfiber nor Chemetall explicitly teach that the method of preparing the surface for an overcoating further comprises applying an oxidizing agent to the surface. Polyfiber teaches that the surface to be overcoated can, for example, be epoxy (Superfil, pg 1 – 2). Sugio teaches a method of roughening a surface of an epoxy resin by treating the resinous surface by applying a solution with an oxidizing agent (hydrogen peroxide) (see, for example, abstract). Sugio further teaches that the step of roughening promotes adhesion for overcoating the roughened surface (see, for example, abstract). Ball also teaches a method of preparing a surface for overcoating (see, for example, abstract, col 3 lines 25 – 35). Ball further teaches applying hydrogen peroxide solutions to a variety of resinous and polymeric surfaces as a means to activate the surface to enhance the binding adhesion of an overcoating (see, for example, col 1 line 49 - col 2 line 26, col 2 lines 40 – 44, Table 3, col 5). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated a step of applying an oxidizing agent to the surface, as taught by Sugio and Ball, into the method of Polyfiber in view of Chemetall as such a step would improve the adhesion properties of the surface allowing it to be more susceptible to bonding a subsequent coating.

Claims 2 and 3: Chemetall further teaches wherein cleaning comprises soaking (dwelling) the surface of the coat with the cleaning solution for about 5 to 10 minutes, and that the cleaning process can be altered based on the degree of cleaning required (see, for example, pg 1). Although Polyfiber in view of Chemetall, Sugio, and Ball do not explicitly teach soaking for about 30 seconds to 5 minutes, it would have been

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obvious to one of ordinary skill in the art at the time of invention to have incorporated a soaking time within this claimed range since in the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a *prima facie* case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976).

Claims 4 – 7: Chemetall further teaches wherein the cleaning comprises agitating (agitate as necessary) wherein agitating involves agitating the surface with a brush (agitate with brushes) (see, for example, pg 1). Although Polyfiber in view of Chemetall, Sugio, and Ball do not explicitly teach wherein agitating is for a time in the range from about 2 minutes to about 10 minutes, it would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated agitating for time within the claimed range since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Claim 8: Chemetall further teaches wherein the cleaning comprises soaking the surface of the coat before agitating the surface with the cleaning solution (see, for example, “Spray on a heavy uniform film of ARDROX 1900B and allow 5 to 10 minutes of dwell time. Agitate with brushes if necessary then rinse”, pg 1).

Claims 9 and 10: Chemetall teaches ARDROX 1900B as an alkaline cleaning solution which can be further be diluted in water depending on the substrate to be cleaned (see, for example, pg 1).

Claims 13 and 14: Ball further teaches wherein the concentration of hydrogen peroxide is 3 wt% (see, for example, Table 3, col 5).

Claim 15: Sugio further teaches wherein the oxidizing agent is applied via spraying (see, for example, col 9 lines 20 – 22).

Claims 16 and 17: Polyfiber further teaches wherein the coat is a paint / primer (see, for example, "SuperFil", "Smooth Prime", or "Silver Shield", pg 1-3).

Claims 18: Polyfiber further teaches wherein the overcoat is paint (see, for example, "Silver Shield" or "Top coat paint", pg 1-3).

Claim 19: Polyfiber further teaches wherein the structure is metallic (Silver Shield has been taught to adhere equally well to metal or plastics (pg 1), and the examiner takes official notice that it is well known in the art to construct plane components, including exterior portions from metals).

Claim 20: Polyfiber further teaches wherein the structure is a composite material (Silver Shield is taught to be created to be applied onto composite structures (pg1), and the examiner takes official notice that it is well known in the art to construct plane components, including exterior portions from composite materials such as CMCs, MMCs, and polymeric impregnated composites).

Claim 21 and 25: Polyfiber further teaches wherein the structure is an aircraft (see, for example, pgs 1-4, including pictures).

Claims 22: Polyfiber further teaches applying the overcoat (see, for example, Step 4 pg 3, apply topcoat paint).

Claims 1 – 22 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Polyfiber, in view of Van Eenam (US patent 5,516,459; hereafter Van Eenam), Sugio and Ball.

Claims 1, 11, 12 and 24: Polyfiber teaches a coated aircraft structure and the method of preparing the surface of a coated aircraft structure for the application of an overcoat (see, for example, “Step 2” through “Step 4”, figures, and pg 1-4) comprising, cleaning the surface or the coat (thoroughly washing/ degreasing / cleaning the under coating prior to applying an overcoating; see for example pg 2 to 3, steps 2 to 4). Polyfiber broadly teaches the cleaning step, but is silent as to the specific chemicals that should be used for cleaning in preparing the surface for overcoating; So Polyfiber does not explicitly teach cleaning with a cleaning solution. When a primary reference is silent as to a certain detail, one of ordinary skill would be motivated to consult a secondary reference which satisfies the deficiencies of the primary reference. Van Eenam teaches a method of using an alkaline cleaner specifically designed to predictably clean aircraft surfaces (see, for example, abstract, col1 line 25 - col 2 line 40). As both Polyfiber and Van Eenam have taught cleaning of aircraft surfaces, and as Polyfiber was silent as to a specific cleaner to use, it would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated the cleaning solution taught by Van Eenam into the method taught by Polyfiber as it is a predictable cleaning solution to clean aircraft surfaces.

Neither Polyfiber nor Van Eenam explicitly teach that the method of preparing the surface for an overcoating further comprises applying an oxidizing agent to the surface.

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Polyfiber teaches that the surface to be overcoated can, for example, be epoxy (Superfil, pg 1 – 2). Sugio teaches a method of roughening a surface of an epoxy resin by treating the resinous surface by applying a solution with an oxidizing agent (hydrogen peroxide) (see, for example, abstract). Sugio further teaches that the step of roughening promotes adhesion for overcoating the roughened surface (see, for example, abstract). Ball also teaches a method of preparing a surface for overcoating (see, for example, abstract, col 3 lines 25 – 35). Ball further teaches applying hydrogen peroxide solutions to a variety of resinous and polymeric surfaces as a means to activate the surface to enhance the binding adhesion of an overcoating (see, for example, col 1 line 49 - col 2 line 26, col 2 lines 40 – 44, Table 3, col 5). Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated a step of applying an oxidizing agent to the surface, as taught by Sugio and Ball, into the method of Polyfiber in view of Van Eenam as such a step would improve the adhesion properties of the surface allowing it to be more susceptible to bonding a subsequent coating.

Claims 2 and 3: Van Eenam further teaches teach soaking (wetting hold period) the surface for 30 seconds with the cleaning solution (see, for example, col 7 lines 14 – 17).

Claim 4: Van Eenam further teaches wherein the cleaning comprises agitating (wiping) the surface of the coat with the cleaning solution (see, for example, col 7 lines 14 – 18).

Claims 5– 6: Van Eenam teaches wherein the cleaning comprises agitating (wiping) is for a time of about 10-15 seconds (see, for example, col 7 lines 14 – 18). But none of Polyfiber, Van Eenam, Sugio, nor Ball explicitly teach wherein the cleaning comprises wherein agitating is for a time in the range from about 30 seconds to 20 minutes, or 2 minutes to 10 minutes. The examiner take official notice that it is well known in the art that the duration of agitation will influence the degree of debris removal. Although Polyfiber in view of Van Eenam, Sugio and Ball do not explicitly teach wherein agitating is for a time in the range from about 30 seconds to 20 minutes, or 2 minutes to about 10 minutes, it would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated agitating for time within the claimed range since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Claim 7: Van Eenam teaches wherein the cleaning comprises agitating (wiping) is for a time of about 10-15 seconds (see, for example, col 7 lines 14 – 18). But none of Polyfiber , Van Eenam, Sugio, nor Ball explicitly teach wherein the cleaning comprises agitating with a brush. The examiner takes official notice that it well known in the art to brush dirty surfaces, as the brushing action provides an added physical force to help remove debris from the surface augmenting the solutions cleaning ability. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated agitating by brushing into the method of Polyfiber in view of Van Eenam, Sugio and Ball to augment the cleaning ability of the cleaning solution.

Claim 8: Van Eenam further teaches wherein the cleaning comprises soaking the surface of the coat before agitating the surface with the cleaning solution (see, for example, col 7 lines 14 – 18, where the surface is wetted for a hold period of ~30 seconds, followed by agitating (wiping)).

Claims 9 and 10: Van Eenam teaches a cleaning solution for airplane surfaces involves a mild alkaline detergent and water (see, for example, abstract, col 3 lines 25 – 35).

Claims 13 and 14: Ball further teaches wherein the concentration of hydrogen peroxide is 3% (see, for example, col 5).

Claim 15: Sugio further teaches wherein the oxidizing agent is applied via spraying (see, for example, col 9 lines 20 – 22).

Claims 16 and 17: Polyfiber further teaches wherein the coat is a paint / primer (see, for example, "SuperFil", "Smooth Prime", or "Silver Shield", pg 1-3).

Claims 18: Polyfiber further teaches wherein the overcoat is paint (see, for example, "Silver Shield" or "Top coat paint", pg 1-3).

Claim 19: Polyfiber further teaches wherein the structure is metallic (Silver Shield has been taught to adhere equally well to metal or plastics (pg 1), and the examiner takes official notice that it is well known in the art to construct plane components, including exterior portions from metals).

Claim 20: Polyfiber further teaches wherein the structure is a composite material (Silver Shield is taught to be created to be applied onto composite structures (pg1), and the examiner takes official notice that it is well known in the art to construct plane

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components, including exterior portions from composite materials such as CMCs, MMCs, and polymeric impregnated composites).

Claim 21 and 25: Polyfiber further teaches wherein the structure is an aircraft (see, for example, pgs 1-4, including pictures).

Claims 22: Polyfiber further teaches applying the overcoat (see, for example, Step 4 pg 3, apply topcoat paint).

Claims 2-8, 10, and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugio.

As discussed in the 35 USC 102(b) rejection above, Sugio teaches all of the features of claims 1 and 12.

Claims 2 and 3: Sugio teaches wherein cleaning involves washing with a detergent and water (see, for example, col 5 lines 20 – 26). Sugio does not explicitly teach soaking the surface for 30 seconds to 5 minutes with the cleaning solution. The examiner takes official notice that it well known in the art to soak dirty surfaces with a cleaning solution, as the soaking action provides time for the cleaner to penetrate / permeate / react / etc. with the dirty surface influencing the solutions cleaning ability. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have allowed the coating solution to soak in the method of Sugio to enhance the cleaning ability of the cleaning solution. Although Sugio did not explicitly teach soaking for about 30 seconds to 5 minutes, it would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated a soaking time

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within this claimed range since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Claims 4 – 7: Sugio teaches wherein cleaning involves washing with a detergent and water (see, for example, col 5 lines 20 – 26). But Sugio did not explicitly teach wherein the cleaning comprises agitating with a brush, or wherein agitating is for a time in the range from about 2 minutes to 10 minutes. The examiner takes official notice that it well known in the art to brush dirty surfaces, as the brushing action provides an added physical force to help remove debris from the surface augmenting the solutions cleaning ability. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated agitating by brushing into the method of Sugio to augment the cleaning ability of the cleaning solution. Although Sugio does not explicitly teach wherein agitating is for a time in the range from about 2 minutes to about 10 minutes, it would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated agitating for time within the claimed range since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Claim 8: Sugio teaches the method of claims 1-7 wherein the method comprise soaking and agitating (as described above), but none explicitly teach wherein the cleaning comprises soaking before agitating. The examiner takes official notice that it

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well known in the art to soak dirty surfaces with a cleaning solution, as the soaking action provides time for the cleaner to penetrate / permeate / react / etc. with the dirty surface influencing the solutions cleaning ability by loosening debris. The examiner takes official notice that it well known in the art to brush dirty surfaces, as the brushing action provides an added physical force to help remove debris from the surface augmenting the solutions cleaning ability. Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated a cleaning comprises soaking the surface of the coat before agitating into the method of Sugio since both processes aid in the cleaning action of cleaning solution, and as a soaking process would loosen bound debris and a brushing process would act to remove debris from the surface, one of ordinary skill in the art would appreciate that the force / time required during a brushing step could be reduced by first loosening the debris by soaking then brushing to more easily remove the loose debris.

Claim 10: Sugio further teaches a cleaning solution is water based (see, for example, col 4 lines 65 – 67, col 5 lines 20 - 25)

Claims 13 and 14: Sugio further teaches wherein the concentration of hydrogen peroxide is at least 1 w/v % (col 3 lines 45 - 55), but Sugio does not explicitly teach the hydrogen peroxide is about 1 to 10 wt% or 3 wt%. It would have been obvious to one of ordinary skill in the art at the time of invention to have incorporated the hydrogen peroxide at such a claimed amount since in the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a *prima facie* case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATHAN H. EMPIE whose telephone number is (571)270-1886. The examiner can normally be reached on M-F, 7:00- 4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Cleveland can be reached on (571) 272-1418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. H. E./
Examiner, Art Unit 1792

/Katherine A. Bareford/
Primary Examiner, Art Unit 1792